

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
1 March 2001 (01.03.2001)

PCT

(10) International Publication Number
WO 01/14937 A1(51) International Patent Classification⁷: G03H 1/08

(21) International Application Number: PCT/IL00/00481

(22) International Filing Date: 7 August 2000 (07.08.2000)

(25) Filing Language: English

(26) Publication Language: English

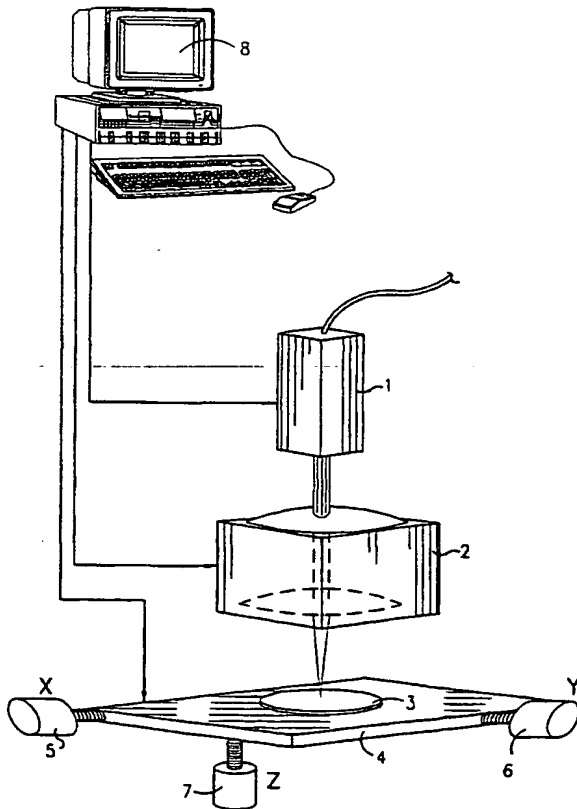
(30) Priority Data:
131575 24 August 1999 (24.08.1999) IL(71) Applicant (for all designated States except US): U.C.
LASER LTD. [IL/IL]; P.O. Box 351, Industrial Zone,
21613 Carmiel (IL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): GULETSKY, Niko-
lay Nikolaevich [RU/RU]; Apt. 232, Metallistov Avenue,82, St. Petersburg (RU). DMITRIEV, Vladimir Yure-
vich [RU/RU]; Apt. 227, Kazakov Street, 32, St. Peters-
burg, 198332 (RU). OSHEMKOV, Sergey Viktorovich
[RU/RU]; Apt. 29, Shakhmatov Street, 14, St. Petersburg,
98904 (RU).(74) Agents: COLB, Sanford, T. et al.; Sanford T. Colb & Co.,
P.O. Box 22, 76122 Rehovot (IL).(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European

[Continued on next page]

(54) Title: VOLUME HOLOGRAMS IN TRANSPARENT MATERIALS



(57) Abstract: This invention discloses a method of producing, in a solid transparent material (3), a hologram of an object; the method includes the steps of: developing a three-dimensional mathematical model of an electro-magnetic field emanating from the object, the field producing an image of the object; computing a corresponding three-dimensional set of points, light scattered from which reconstructs the field; and focusing a pulsed laser beam into the solid transparent material onto each of the points sequentially, the beam being capable, when focused, of causing optical breakdown in the solid transparent material.

WO 01/14937 A1



patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

— Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.